

Antibody-based Diagnostics

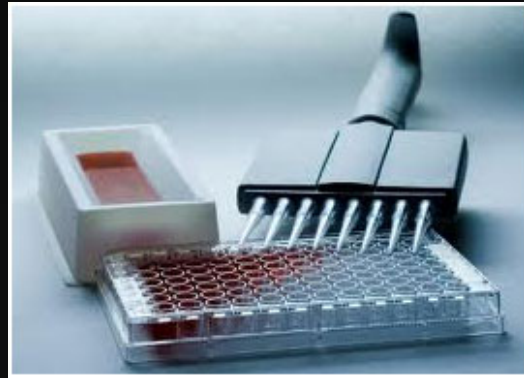
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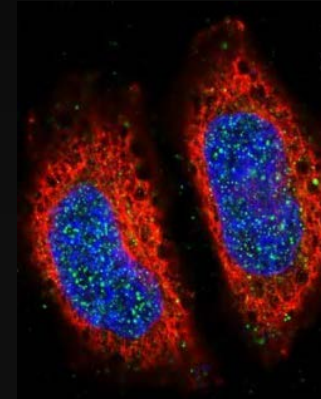
FACULTY MEMBER – NANO INSTITUTE OF UTAH; ENTREPRENEURIAL FACULTY SCHOLARS
BIOLOGICAL CHEMISTRY PROGRAM; HCI EXPERIMENTAL THERAPEUTICS

2017.02.27 Translation Medicine Symposium

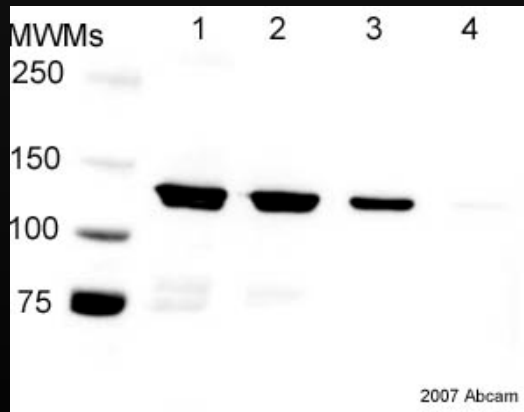
What Would We Do Without Immunoassays?



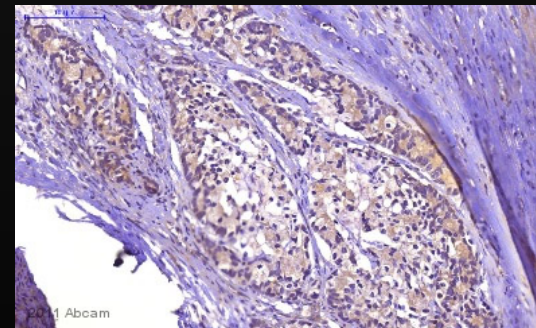
ELISA



Immunocytochemistry

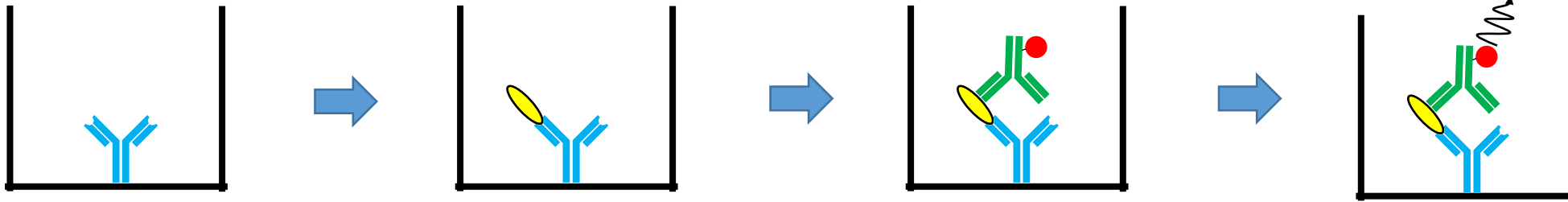


Western Blot



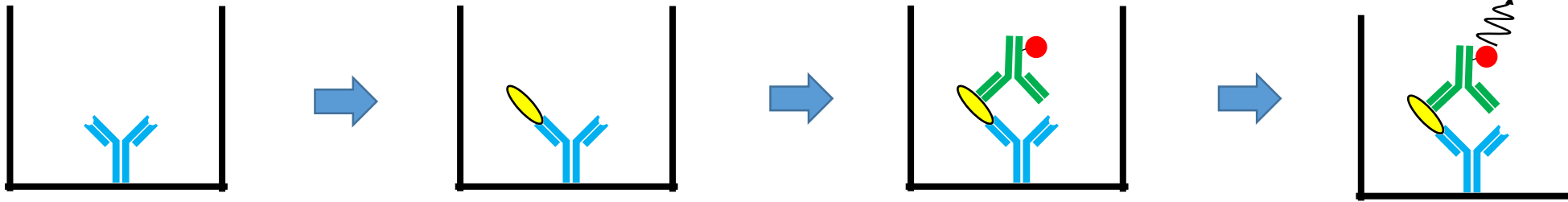
Immunohistochemistry

Basic Principles of Immunoassays



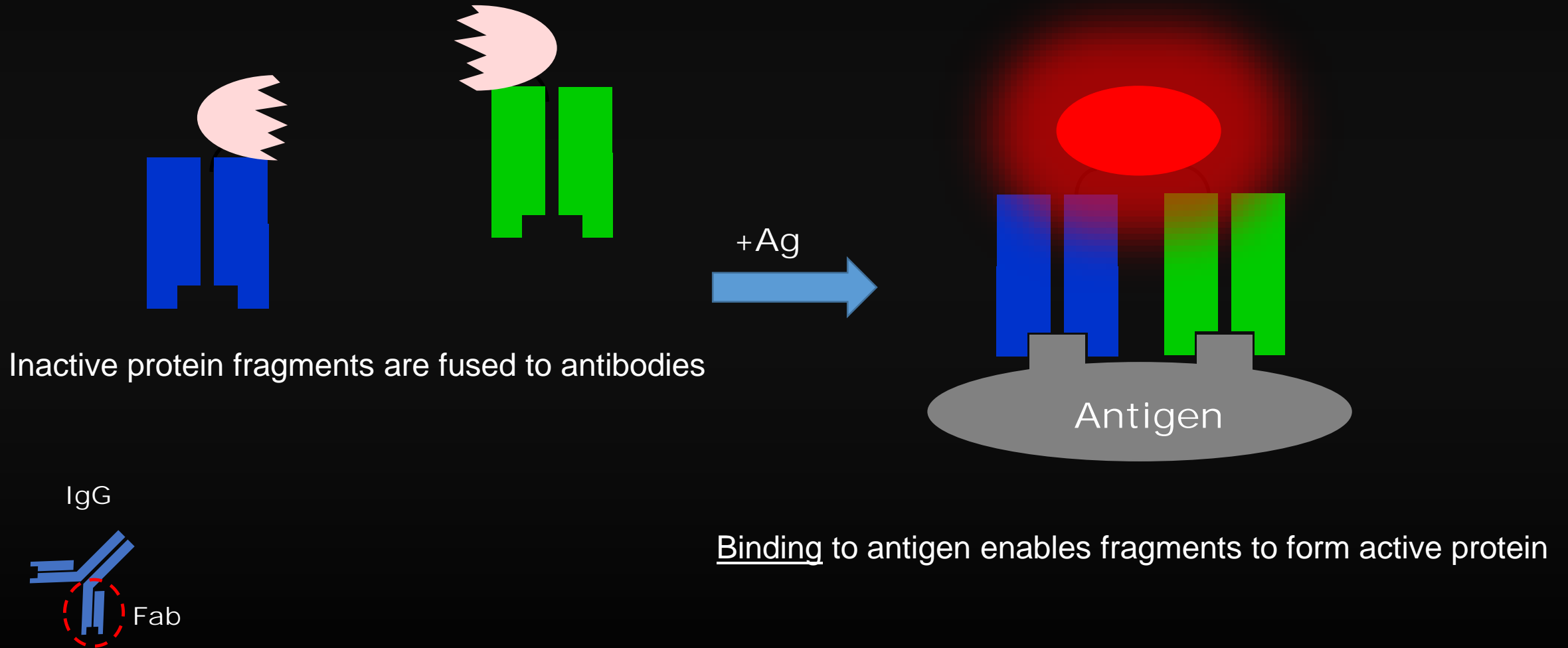
Must wash to remove unbound, active signal

Basic Principles of Immunoassays

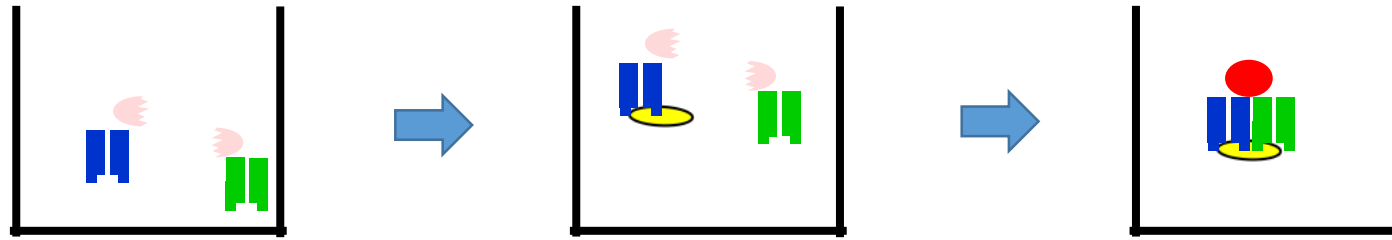


Un-removed, active signal
gives high background

Target Engaged Complementation (TEC) Binding activates reporter signal

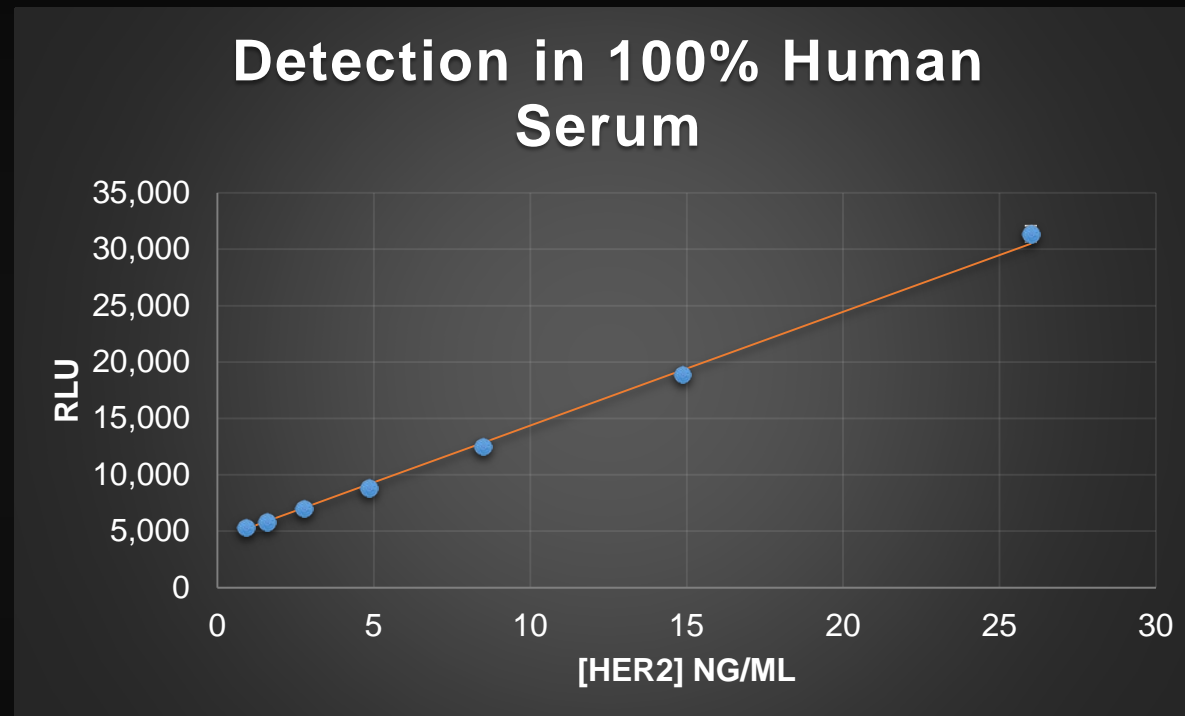


Basic Principles of "TEC"



Binding activates signal;
no washing required.

Single-step detection of soluble antigen (HER2)



Quantified HER2 levels < 1 ng/mL

Current HER2 assay has a cut-off of 15 ng/mL as criteria (Herceptest ®)

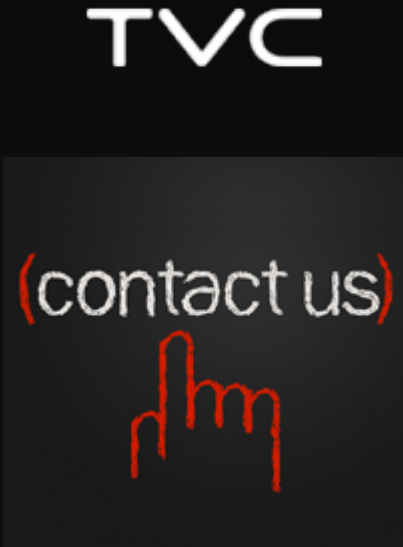
Defining TEC assay value and finding people who care...Round 1

“Novel” Idea

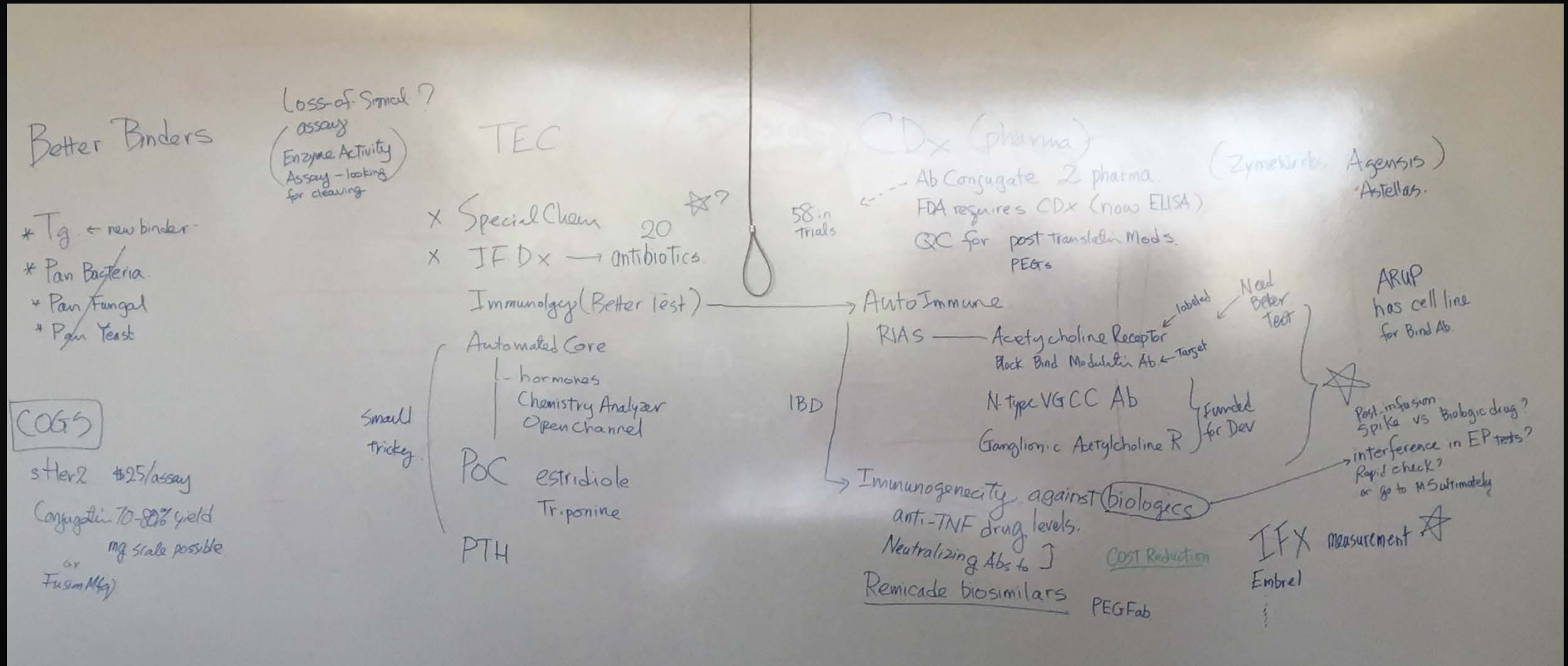
Predefined Application

Comparable to Gold Standard

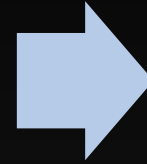
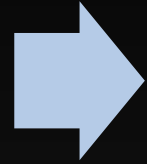
Defining TEC assay value and finding people who care...Round 2



Get smart people to tell you what the want/need



Actual white-board from strategy session with ARUP



- HCI
- ARUP
- Various Research Labs

- Sources for Antibodies
 - Data Base
 - Commercial
 - In House Development

- Define "Improvement"
 - Faster
 - Cheaper
 - More Sensitive
 - Unmet need

Streamlined TEC assay value proposition

Versatile

Customizable to
soluble or cell-
surface proteins

Rapid

Total Assay Time
~30-60 min

Single-step

Homogeneous
assay eliminates
multiple steps

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Seek Funding



Lessons learned

- Good academic ideas might not be good commercial ideas
- Get to the clinic and identify the nail, then work on your hammer
- Disclose early – way before you think you should



ARUP Collaborators ARUP

- Noriko Kusakawa, Ph.D. – VP New Tech
- Julio Delgado, M.D., M.S. – CMO

TVC

- Leena Bhoite, Ph.D. – Tech Manager

Research Assistant Professor/Post Docs

- Andy Dixon, Ph.D.
- Brett “Bump” Baumgartner, Ph.D. (former)
- Hsiao-nung Chen, Ph.D.

Graduate Students

- Jessica McCombs – UNCF/Merck Fellow
- Sun Jin Kim
- Keith Arlotta
- Chad Adamovich (Pharm.D.)

GPEN (6 month exchange)

- Sylvia Krippner
- Bjorn ter Mors



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